GOVERNMENT OF INDIA
WATER RESOURCES
LOK SABHA

UNSTARRED QUESTION NO:825
ANSWERED ON:06.12.2004
RESEARCH ON UTILISATION OF UNUTILISED RAIN WATER
Athawale Shri Ramdas

Will the Minister of WATER RESOURCES be pleased to state:

(a) whether the Government proposes to promote the research on utilisation of unutilised rain water in order to tackle the problem of water crisis in various parts of the country;

(b) if so, the details thereof; State-wise/location-wise;

(c) whether any technique for utilisation of rain water exists in the country; and

(d) if so, the extent to which it has been useful?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF WATER RESOURCES (SHRI JAI PRAKASH NARAYAN YADAV)

(a) & (b) The Central Ground Water Board (CGWB) carries out scientific studies and research for ground water management and full utilisation of surplus monsoon runoff. Based on scientific studies undertaken in various parts of the country, CGWB has prepared a report entitled "Master Plan for Artificial Recharge to Ground Water". This report outlines a broad framework about the feasibility of recharge structures in the country. It envisages recharge of 36453 Million Cubic Meter volume of surplus monsoon runoff, through construction of 39.25 lakh artificial recharge and roof top rain water harvesting structures. State-wise details of area identified for artificial recharge and quantity of surface water to be recharged as envisaged in the above report is given in the Annexure-I.

(c) Yes, Sir. CGWB has prepared manual and guidelines on artificial recharge dealing with various techniques for utilisation of unutilized rain water. Percolation tanks, check dams, recharge shafts/ trenches/pits, sub-surface dykes, nala bunds, contour bunds, gully plugs etc., are prevalent rain water harvesting structures for utilisation of unutilized rain water.

(d) The schemes of rain water harvesting and artificial recharge implemented during the VIII and IX Plans have yielded positive results. The impact assessment of various recharge schemes implemented by CGWB is given in Annexure-II.

ANNEXURE-I

(REFERENCE LOK SABHA UNSTARRED QUESTION NO. 825 DATED 06.12.2004)

STATE-WISE DETAILS OF AREA IDENTIFIED FOR ARTIFICIAL RECHARGE AND QUANTITY OF SURFACE WATER TO BE RECHARGED AS ENVISAGED IN THE MASTER PLAN

Sl. No.	Name of State	Area identified for Artificial Recharge (sq. km.)	Quantity of Surface Water to be Recharged in MCM
1.	Andhra Pradesh	65333	1095
2.	Bihar & Jharkhand	4082	1120
3.	Chhattisgarh	11706	258
4.	Delhi	693	444
5.	Goa	3701	529
6.	Gujarat	64264	1408
7.	Haryana	16120	685
8.	Himachal Pradesh	--	149
9.	Jammu & Kashmir	--	161
10.	Karnataka	36710	2065
11.	Kerala	4650	1078
12.	Madhya Pradesh	36335	2320
13.	Maharashtra	65267	2318
14.	Orissa	8095	406
15.	Punjab	22750	1200
16.	Rajasthan	39120	861
17.	Sikkim	--	44
18.	Tamil Nadu	17292	3597

19.	Uttar Pradesh & Uttaranchal	45180	14022
20.	West Bengal	7500	2664
21.	Andaman & Nicobar Islands	--	3
22.	Chandigarh	33	26
	Total	448831	36453

ANNEXURE-II

(REFERENCE LOK SABHA UNSTARRED QUESTION NO. 825 DATED 06.12.2004)

IMPACT ASSESSMENT OF ARTIFICIAL RECHARGE PROJECTS IMPLEMENTED BY CENTRAL GROUND WATER BOARD

Sr No	Name of State	No. of schemes for which impact assessment done	Artificial Recharge Structures	Impact assessment
1.	Andhra Pradesh	6	Percolation Tanks	4500-5900 Cubic meter runoff water recharged in one year
		3	Check dams	1000-1250 Cubic meter runoff water recharged in one year
		1	Combination of recharge pits and lateral shafts	370 Cubic meter runoff recharged in one year
2	Arunachal Pradesh	1	Roof Top Rain Water Harvesting	7000 cubic meter runoff water harvested in one year
3.	Assam	1	Roof Top Rain Water Harvesting	5500 Cubic meter runoff water harvested in one year
4.	Bihar	1	Roof Top Rain Water Harvesting	4700 cubic meter runoff water recharged in one year
5.	Chandigarh	6	Roof Top Rain Water Harvesting	1440-13,000 Cubic meter runoff water recharged in one year
		1	Rain Water Harvesting through Roof Top & Pavement catchments	34.50 lakhs cubic meter runoff water recharged in one year
		1	Recharge Trenches	9.50 lakh cubic meter rainwater runoff recharged in one year
6.	Gujarat	3	Rain Water Harvesting through Roof Top & Pavement catchments	11000-45000 runoff water recharged in one year
7.	Haryana	1	Roof Top Rain Water Harvesting	2350 Cubic meter runoff water recharged in one year
		1	Combination of Recharge shafts and injection wells	3.50 lakh cubic meter runoff water recharged in one year. Declining rate reduced from 1.175 m/yr to 0.25 m/yr.
8.	Himachal Pradesh	3	Check dams	1.20-21.00 lakhs cubic meter runoff water recharged in one year.
9.	Jammu and Kashmir	2	Roof Top Rain Water Harvesting	300-1200 Cubic meter runoff water harvested in one year
10	Jharkhand	1	Roof Top Rain Water Harvesting	4500 cubic meter runoff water recharged in one year.
11	Karnataka	1	Combination of Percolation	2-3.5 m. rise in water levels and 9-16 ha area

			Tanks, Watershed Structures, Recharge wells, Roof Top Rain Water Harvesting	benefited from percolation tanks 8.60 lakh cubic meter water recharged through recharge well. 3-5 m rise in ground water levels through watershed structures. 530 cubic meter recharged from Roof Top Rain Water Harvesting.
12	Kerala	1	Sub-surface Dyke	Augmented 5000 Cubic meter of ground water in upstream side with 2 m rise in groundwater levels.
		1	Recharge wells	2800 Cubic meter runoff water recharged in one year
		3	Percolation tanks	2000-15000 Cubic meter runoff water recharged in one year
		1	Tidal regulator	4000 Cubic meter runoff water conserved and a difference of 1.5 m was observed in upstream and downstream water level.
		1	Check Dam	30,000 Cubic meter runoff water recharged in one year
13	Lakshadweep	1	Roof Top Rain Water Harvesting	300 Cubic meter rainwater harvested in one year
14	Madhya Pradesh	4	Sub-surface Dykes	Rise in water level in dugwells in the range of 0.80-3.80 m and 6-12 m in hand pumps has been observed.
		1	Percolation Tank	Rise in ground water levels by 1-4 m. in command areas downstream of tanks has been observed.
		1	Roof Top Rain Water Harvesting (1000 houses)	More than 2 lakh cubic meter runoff water recharged in one year.
		1	Combination of sub-surface dykes and check dam	Rise in water levels in existing tubewells in upstream area by 0.30 m to 2.00 m has been observed.
15	Maharashtra	2	Roof Top Rain Water Harvesting System	196-280 cubic meter runoff water recharged in one year
		1	Combination of Percolation Tanks and Check Dams.	Benefited area - About 60 to 120 ha. per Percolation Tank, 3 to 15 hectare per Check Dam Water level rise - Upto 1.5 m.
		1	Percolation tanks, Recharge Shaft, Dugwell Recharge.	Benefited area - 400-500 hectare around the scheme.
16	Meghalaya	1	Roof Top Rain Water Harvesting	6800 cubic meter runoff water harvested in one year
17	Mizoram	1	Roof Top Rain Water Harvesting	50,000 cubic meter runoff water harvested in one year
18	Nagaland	2	Roof Top Rain Water Harvesting	3700 - 12,800 cubic meter runoff water harvested in one year
19	NCT Delhi	2	Check dams	Water levels have risen upto 2.55 m in the vicinity of Check Dams and area benefited is upto 30 hectare from each check dam in JNU & IIT. 1.30-lakh cubic meter of rainwater was recharged in one year in Kushak Nala.

		7	Roof Top Rain Water Harvesting	800 - 5000 Cubic meter runoff water recharged in one year
		8	Rain water harvesting through Roof Top & Pavement catchments	8500 - 20,000 cubic meter runoff water recharged in one year
20	Orissa	1	Rain water harvesting through Roof Top & Pavement catchments	19,000 cubic meter runoff water recharged in one year
21	Punjab	1	Roof Top Rain Water Harvesting	500 cubic meter runoff water recharged in one year
		3	Recharge wells	9 - 15.50 lakhs cubic meter runoff water recharged in one year.
		1	Trenches	Average rise in water level to 0.32-0.70 m has been observed.
		2	Combination of vertical shafts, injection wells & recharge trenches	Recharge of 1.70 lakh cubic meter runoff water caused average rise of 0.25 m. in ground water levels around the scheme area.
		1	Combination of recharge shafts and injection wells	14,400 Cubic meter runoff water recharged in one year.
22	Rajasthan	1	Check dams	88,000 Cubic meter runoff water recharged in one year. Water level rise - 0.65 m.
		12	Roof Top Rain Water Harvesting	350-2800 Cubic meter runoff water recharged in one year.
		3	Sub-surface Barriers	2000-11500 Cubic meter runoff water recharged in one year. Water level rise from 0.25 to 0.60 m.
23	Tamil Nadu	1	Sub-surface Dyke	39.25 ha. area benefited.
		7	Percolation Tanks	10,000-2,25,000 runoff water recharged in one year.
		1	Roof Top Rain Water Harvesting	3700 cubic meter runoff water recharged in one year
24	Uttar Pradesh	5	Roof Top Rain Water Harvesting	350-1100 cubic meter runoff water recharged in one year
25	West Bengal	1	Combination of Farm Ponds, Nala Bunds, Sub-surface Dykes	Water level rise of 0.15 m. observed.
		1	Sub-surface Dykes	Rise in water levels by 0.45 m. observed